REMARKS

In view of the above amendments and following remarks, reconsideration and further examination are requested.

In the Office Action mailed April 9, 2007: claims 7, 13 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hosokawa et al. '398 in view of Bertin; and claims 8-12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hosokawa et al. '398 in view of Bertin, and further in view of Hosokawa et al. '811. These rejections are respectfully traversed, and the relied-upon references are not applicable with regard to the currently amended claims for the following reasons.

Hosokawa et al. '398 discloses a lip-type seal comprising an elastic seal ring 5 that includes an annular fitted part 5a and a lip part 13, and a support ring 12 that includes an annular joint part and an annular supporting part 12a. The lip part 13 is pictured in Fig. 1 so as to be tapered in cross section from an area at which non-contact with the annular supporting part 12a begins toward an end thereof; however, this tapered configuration is not explained in the specification. As expressed in the response filed January 4, 2007, the invention of Hosokawa et al. '398 is based on a technical idea that a lip part (lip end portion) is formed so as to prevent contact with rotation shaft 32 over a large area (i.e. face-contact) by restricting excessive deformation of the lip part caused by high pressure.

Bertin discloses a lip-type seal comprising an elastic seal ring that has a cupola 4 as a lip part. The cupola has a continuously decreasing thickness from its base of thickness e2 to a contact ridge forming a sealing lip 1 of thickness el. The cupola is curve-formed so as to be convex outwardly (toward a pressure side) and is formed so as to satisfy the ratio e2/e1 being 2 to 1. However, the lip-type seal of Bertin does not include a support ring having an annular supporting part, and accordingly, it is respectfully submitted that there is nothing that allows thickness e2 of Bertin to be corresponded to thickness T1 of the instant invention. Indeed, the lip-type seal of Bertin is based on a technical idea that the lip part (cupola) is curve-formed so as to convex outwardly, and therefore, to prevent deformation toward a shaft by itself without need

of a support ring. To the contrary, claim 7 requires that **thickness T1 is a thickness of the lip part at an area at which non-contact with the annular supporting part begins**. Thus, because Bertin does not include a support ring, it is only through impermissible hindsight that the Examiner has equated thickness e2 of Bertin to thickness T1 of the claimed invention.

Additionally, because of the divergent teachings of Hosokawa et al. '398 and Bertin (i.e. Hosokawa et al. '398 disclosing a linearly-extending lip part and a support ring, and Bertin disclosing a curved lip part without a support ring), it is respectfully submitted that one having ordinary skill in the art would not have found it obvious to combine the teachings thereof, whereby claim 7 is allowable when viewing Hosokawa et al. '398 and Bertin in combination. Hosokawa et al. '811 does not remedy this deficiency of Hosokawa et al. '398 and Bertin, whereby claim 7 is allowable over the relied-upon references either taken alone or in combination.

In Bertin, when excessive pressure is applied to the lip part (cupola), the lip part might be deformed inwardly (toward a shaft) to cause buckling, and then does not return to its original shape. Thus, similar to Hosokawa et al. '398, the invention of Bertin is based on a technical idea that the lip part (cupola) is curve-formed so as to prevent contact with a shaft over a large area (i.e. face-contact) by restricting excessive deformation of the lip part caused by high pressure.

With the lip-type seal of the instant invention, when high pressure is not applied to lip part 23 the lip part extends linearly and comes into narrow-width contact with rotational shaft S while being supported by annular supporting part 33 of support ring 30 as shown in Fig. 5A, for example. On the other hand, in contrast to each of Hosokawa et al. '398 and Bertin, when high pressure is applied to the lip part 23, end part 23b of the lip part 23 is appropriately elastically deformed so that a contact width W with which the lip part 23 comes into contact with the rotational shaft S becomes greater as shown in Fig. 5B, for example. This is explained on page 14, line 22 through page 15, line 4 of the substitute specification.

Accordingly, because the lip part 23 is formed so as to extend linearly under a non-pressure condition, while being tapered in cross section from an area at which non-contact with the annular supporting part begins toward an end of the lip part so that a value of T0/T1

falls within 0.3 to 0.7, with T1 being a thickness of the area at which non-contact with the annular supporting part of the support ring begins and T0 being a thickness of the end of the lip part, the lip part can be appropriately deformed and brought into contact with the shaft in a state having a greater contact width with the shaft when the lip part is exposed to a high-pressure environment. Thus, appropriate surface pressure under which sealability is secured is obtained, and the surface pressure is dispersed to lower a maximum surface pressure. As a result, wear of the lip part is reduced and durability is improved. Claim 7 has been amended to more clearly recite features of the lip part that allow for this face-contact.

That is, while being based on a technical idea that it is more desirable from a viewpoint of durability to expand the contact width of a lip part in a high pressure environment, though it is conventional to maintain a line-contact state in order to secure sealability as shown in the cited references, claim 7 has been amended to require each of the following constituent elements (i), (ii), and (iii):

(i) the lip part 23 is formed so as to extend linearly under a non-pressure condition,

(ii) the lip part 23 is tapered in cross section from an area at which non-contact with the annular supporting part begins toward the end of the lip part, and

(iii) the lip part 23 is formed so that a value of T0/T1 falls within 0.3 to 0.7, with T1 being a thickness of the area at which non-contact with the annular supporting part of the support ring begins and T0 being a thickness of the end of the lip part.

As expressed previously, each of Hosokawa et al. '398 and Bertin is based on the technical idea that a lip part (lip end portion) is formed so as to prevent contact with a rotational shaft over a large area (i.e. face-contact) by restricting excessive deformation of the lip part caused by high pressure, whereas the present invention is based on the technical idea that it is more desirable from a viewpoint of durability to expand a contact width of a lip part in a high pressure environment. Thus, there is a difference between the technical idea upon which the

inventions of Hosokawa et al. '398 and Bertin are based, and that upon which the instant invention is based.

Accordingly, the tapered configuration of Bertin is curve-formed so as to satisfy the ratio e2/e1 being 2 to 1 such that line-contact is exhibited under high pressure, whereas the condition of the present invention of T0/T1 falling within 0.3 to 0.7 is such that face-contact is exhibited under high pressure. Thus, the tapered configuration of the present invention, which is formed so as to ***extend linearly under a non-pressure condition*** (as now recited in claim 7) while satisfying the ratio of T0/T1 falling within 0.3 to 0.7, is different from the tapered configuration of Bertin.

In view of the above amendments and remarks, it is respectfully submitted that the present application is in condition for allowance and an early Notice of Allowance is earnestly solicited.

If after reviewing this Amendment, the Examiner believes that any issues remain which must be resolved before the application can be passed to issue, the Examiner is invited to contact the Applicants' undersigned representative by telephone to resolve such issues.

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